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Transporter Shaft Coupling and Decoupling

Abstract

Apparatus and methods for transporter shaft coupling and decoupling to assure
5 alignment of a user interface with a control shaft through matching asymmetric
cylindrical surfaces and alignment of an upper shaft segment and a lower shaft segment
with ribs meshing with grooves on rings attached to the upper shaft. A tone confirms
proper connection. Alignment apparatus is protected from damage associated with
torques applied to the control shaft by tab features designed to first give way before other
10 damage is incurred and from moisture by apparatus that seals the connection between
upper and lower shaft segments. The user is protected from sudden loss of control by
requiring the user interface to execute a sequence of linear and rotational manipulations
during assembly of the shaft.